Space Weather Forecast

Issued on Friday 18 October 2024 at 13:03 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with frequent common class flares, the strongest from a relatively simple region in the southeast. There are eight sunspot regions currently on the disc, with the most complex of these being a relatively small region in the northwest. Two of these regions are now approaching the southwest limb, so difficult to assess. The other region remain small and relatively simple with a number of these showing signs of decline.

No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Background slow wind conditions were observed with solar winds 350-400km/s. Interplanetary Magnetic Field (IMF), was Weak to Moderate, with its north-south component turbulent, but perhaps favouring a negative orientation (southward) overall. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) were at background, with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast with a chance of isolated M-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Background winds are most likely to persist, however spells of slightly elevated to elevated winds cannot be ruled out due to any interaction with the fast solar winds origination from the large coronal hole on the northwest disc during days 1-3 (18-20 Oct). However, this wind is likely passing north of Earth. A further small equatorial coronal hole may bring its faster solar winds late day 4 (21 Oct) or just beyond the forecast period. Mainly Quiet geomagnetic activity is expected, with isolated Unsettled intervals. There is a chance of a spell of Unsettled to Active day 1-3 (18-20 Oct), and chance of Active to G1 Minor Storm day 4 (21 Oct). Any visible aurora for the UK is likely to remain limited to the far north of Scotland.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is due to remain at background, with no Solar Radiation Storms expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	5	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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